

REMARKS

Claims 1-141 were originally presented. Claims 89-111 were previously canceled. Claims 1-88, 112-119 and 137-141 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a non-elected invention, there being no generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No.11.

It is noted that the corrected or substitute drawings received by the Examiner on August 7, 2002 are acceptable.

Claims 120, 121 and 123-136 are rejected under 35 U.S.C. §102(b) as being anticipated by Purdom (US 5,750,925). According to the Examiner, regarding claim 120:

"Purdom '925 discloses a boiler in Fig.1 B, comprising:

a containment compartment 106 for containing a thermal mass 108;

a protective compartment 107 within which a memory module 109 is located; and

means for interconnecting the compartments 135."

The Examiner has taken the position that:

"the limitation of protecting the memory module from temperatures on the order of 260°C for ten hours is an intended use or result of the claimed structure, and does not further limit the subject matter of the claim, therefore it has not been considered."

The position taken by the Examiner is believed to be improper and will be addressed herein, but may be moot in view of the amendment to claim 120 and the reasons stated herein for the allowance of the amended claims. Accordingly, the Applicant will address the amended claim 120 first.

Claim 120 has been amended to more accurately define the invention. As the claim was originally written, the function of protecting the memory at the stated temperature for the stated duration was linked to the "means for interconnecting". Although the means for interconnecting play a role in this function, other means described in the specification participate significantly in this function. Therefore, claim 120 has been slightly amended to clarify the fact that the means for interconnecting works in combination with such other means to achieve protecting the memory at the stated temperature for the stated duration.

In the instant specification, an exemplary embodiment of a boiler for a hardened voyage recorder is disclosed. The "hardened voyage recorder" is a term of art and identifies a recorder which is markedly different from an aircraft flight

recorder. See, for example, paragraphs 17, 18, 21, and 24 of the instant published application which are reproduced below for easy reference.

"[0017] Low temperature fires were not a problem with prior art protective units, such as the one described in the incorporated '925 patent, because those units used "TSOP" (thin small outline package) memory components, with leads extending therefrom. As a result, even if a board could not (or did not) survive a low temperature fire, the memory chips that did survive and could be "reworked", i.e., be placed on another board easily and read."

"[0018] In the present application (marine recorder application) low temperature fire survivability at the board level becomes very important since it is desirable to use "BGA" (ball grid array) packages for memory components. These smaller packages can be more densely packed, use less "real estate", etc.; but suffer from the constraint that connections are made under the device. I.e., no leads extend out from the periphery of a BGA package (like they do from a TSOP) which could make board reworking after a low temperature fire difficult or impossible. Nevertheless, the BGA design is otherwise desirable for the reasons indicated hereinabove and for other reasons described below."

"[021] Further, using the '925 patent as a frame of reference, the boiler described in that patent does not provide the mechanical strength required for marine applications. More particularly, marine applications standards addressing "penetration" are different from those for flight recorders since the size of objects involved in a marine accident are typically considerably larger than the relative light weight pieces of an aircraft involved in an air crash."

"[0024] It may be seen with reference to the '925 patent that the cable exits the boiler via a rectangle cut out of plate edge; this is a point of weakness in the lid."

The above quoted portions of the instant application explain some of the reasons why the prior art flight recorders are insufficient for use in marine applications where the hardened voyage recorder is required. One of the features needed in a hardened voyage recorder is that the memory must be protected for a relatively long time in a relatively low temperature fire. Flight recorders are not designed for this. They need to protect memory from a relatively high temperature fire, but only for a relatively short time.

The instant application discloses a boiler that protects memory against "low temperature fires" (a defined term in the specification). Some of the features of the boiler which

enable it to protect memory for a relatively long time in a relatively low temperature fire are described as follows:

The boiler of the invention is cylindrical. The old aircraft boiler was rectangular. The cylindrical boiler fits into the depicted bell and allows for insulation to be evenly spaced around the cylinder to improve low temperature fire resistance. The cylindrical shape of the exemplary boiler is more thermally efficient than the prior art aircraft rectangular boiler. The exemplary boiler is encased within a constant thickness of protective material within the bell shaped outer housing to further improve low temperature fire protection for the memory within the boiler.

The prior art boiler shown in the '925 patent utilizes foam WITHIN the boiler (foam 110 in FIG. 1B) which conducts heat and puts memory at risk. The exemplary boiler of the present invention, in a preferred embodiment, does not employ foam within the protective compartment of the boiler; and the memory boards of the stacked memory are separated by AIR from the metal outside surface of the boiler. The prior art used a single memory board between two pieces of cushioning (and problematically heat conducting) foam.

All of the above-described features of the preferred embodiment cooperate to achieve the functional result claimed in claim 120. It will be appreciated, however, that it may be possible to achieve the claimed function with some sub-

combination of these features or perhaps with only one of these features. Therefore, rather than claiming specific structure, the Applicant is entitled to claim means for achieving the desired result. Clearly, the prior art aircraft flight recorder boilers do not have means for achieving this function because this function is not appropriate or desirable in an aircraft flight recorder. In fact, the prior art flight recorder boiler, as explained hereinabove, actually teaches away from applicants claimed invention.

For the foregoing reasons, claim 120 cannot be anticipated by or rendered obvious in view of the prior art of boilers for aircraft flight recorders.

Accordingly, claim 120, as amended, is respectfully submitted to be in condition for allowance and should be allowed.

Additionally, it is respectfully submitted that it was improper for the Examiner to ignore the portion of the claim following "wherein" and that this portion of the claim should have been considered pursuant to §112, ¶6. Since the examination of claim 120 was incomplete (as, according to applicants submission, the Examiner did not properly treat the functional language of claim 120 pursuant to §112, ¶6), it would be improper to make any next rejection of this claim a final rejection. Although this point may be moot in view of the amendment to claim 120, the Applicant will address it for completeness.

The language of claim 120 at issue is reproduced below for ease of reference:

"means for interconnecting, when open, provides a passageway for said thermal mass to flow between said containment compartment and said protective compartment and protect said memory module from temperatures on the order of 260°C for approximately ten hours." [Emphasis added]

The patent office frequently takes the position that any language in the preamble which might distinguish the invention is merely intended use and not considered to be a limitation. Although the patent office takes this position fairly consistently, frequently it is contrary to the law. See, e.g., In re Stencil, 4 U.S.P.Q.2d 1071 (Fed. Cir. 1987) regarding whether a preamble of intended purpose constitutes a limitation which must be considered in examining the claim.

However, in the instant application, the language which the Examiner has chosen to ignore is not a preamble. It is a function following a claimed "mean". Thus, the Applicant believes that the portion of claim 120 ignored by the Examiner qualifies for interpretation under the sixth paragraph of §112.

A claim limitation will be interpreted to invoke 35 U.S.C. §112, sixth paragraph if it meets the following 3-prong analysis:

(A) the claim limitations must use the phrase "means for" or "step for";

(B) the "means for" or "step for" must be modified by functional language; and

(C) the phrase "means for" or "step for" must not be modified by sufficient structure, material or acts for achieving the specified function. MPEP §2181.

With respect to the first prong of this analysis, a claim element that does not include the phrase "means for" or "step for" will not be considered to invoke 35 U.S.C. 112, sixth paragraph. If an applicant wishes to have the claim limitation treated under 35 U.S.C. 112, sixth paragraph, applicant must either: (A) amend the claim to include the phrase "means for" or "step for" in accordance with these guidelines; or (B) show that even though the phrase "means for" or "step for" is not used, the claim limitation is written as a function to be performed and does not recite sufficient structure, material, or acts which would preclude application of 35 U.S.C. 112, sixth paragraph. See, Watts v. XL Systems, Inc., 56 USPQ2d 1836 (Fed. Cir. 2000).

In the instant case, intended to take advantage of part (B), i.e. the part underlined above because it is not only the means for connecting which performs the function, but other means



which cooperate with the means for connecting as described in more detail below.

With respect to the second prong of this analysis, see York Prod., Inc. v. Central Tractor Farm & Family Center, 40 USPQ2d 1619, 1624 (Fed. Cir. 1996) (holding that a claim limitation containing the term "means" does not invoke 35 U.S.C. §112, sixth paragraph if the claim limitation does not link the term "means" to a specific function). It must be clear that the element in the claims is set forth, at least in part, by the function it performs as opposed to the specific structure, material, or acts that perform the function.

It is clear that claim 120 as originally presented passes this prong of the analysis.

With respect to the third prong of this analysis, see, Seal-Flex, Inc. v. Athletic Track and Court Construction, 50 USPQ2d 1225, 1234 (Fed. Cir. 1999) (Radar, J., concurring) ("Even when a claim element uses language that generally falls under the step-plus-function [or means-plus-function] format, however, §112 ¶6 still does not apply when the claim limitation itself recites sufficient acts [or structure] for performing the specified function."); Envirco Corp. v. Clestra Cleanroom, Inc., 54 USPQ2d 1449 (Fed. Cir. 2000) (holding "second baffle means" does not invoke 35 U.S.C. 112, sixth paragraph, because the word "baffle"

itself imparts structure and the claim further recites the structure of the "baffle").

Ironically, it may have been the lack of structure in original claim 120 which led the Examiner to ignore the functional language rather than apply the 35 U.S.C. 112, sixth paragraph analysis.

It is believed that the function claimed in claim 120 which was not considered by the Examiner qualified for consideration under 35 U.S.C. 112, sixth paragraph because it passes the three prong test. Therefore, the Examination of claim 120 was incomplete and any second rejection of claim 120 should not be made final.

Once again, the argument regarding the analysis of claim 120 as originally submitted is now believed to be moot in view of applicants submission that claim 120, as amended, is allowable.

Regarding claim 121, the Examiner believes that the prior art module includes solid state BGA memory and cites col. 7, line 5.

Since claim 121 depends from claim 120, the remarks made about claim 120 apply to this claim as well. Moreover, it is not seen where the prior art teaches BGA memory.

Since claim 123 depends from claim 120, the remarks made about claim 120 apply to this claim as well.

Regarding claim 124, the Examiner states that the cover plate in the prior art is press fit as shown in Fig. 1B.

Since claim 124 depends from claim 120, the remarks made about claim 120 apply to this claim as well. Moreover, it is not seen where the prior art teaches a press fit cover plate.

Since claims 125-135 depend from claim 120, the remarks made about claim 120 apply to these claims as well.

Regarding claim 136, the Examiner states that Purdom '925 discloses a boiler in Fig. 1B, comprising: a containment compartment 106 for containing a thermal mass 108; a protective compartment 107 within which a memory module 109 is located; and means for interconnecting the compartments 135. The Examiner further states that the boiler includes a cover plate 101 defining a hole spaced apart from its edge, and the memory module 109 is coupled to a cable 113 which extends through the hole.

The disclosed preferred embodiment of the present invention has a cover plate which adds structural integrity to the protective compartment of the boiler. Claim 136 has been amended to point out this feature. The cover plate in the prior

art boiler was merely taped onto a boiler edge. The cable exit from the cover plate of the present invention is circular and spaced apart from the edge of the cover plate. Claim 136 has been amended to better define what is meant by "spaced apart from the edge". The prior art cable exit was a rectangular notch in the taped plate edge. A notched opening at the edge of the plate exhibits a point of structural integrity weakness. It is believed that claim 136 clearly makes this distinction over the prior art.

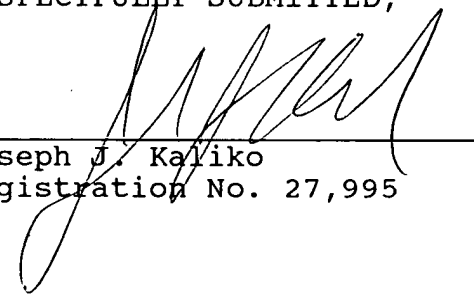
Claim 122 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Purdom '925 in view of Purdom et al. (US 5,841,631). Regarding claim 122, the Examiner states that "Purdom '925 discloses a boiler within a hardened voyage recorder as applied to claim 120 above, however the memory module does not include a stacked memory. Purdom et al. '638 teaches a hardened voyage recorder having stacked memory chips. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a stack of memory chips as taught by Purdom et al. '638 in order to reduce memory volume required for housing a data recording device (col.1, lines 9-11)."

Claim 122 depends from claim 120 and the arguments made above regarding 120 apply to this claim as well. For those reasons alone, this rejection is overcome. In addition, any combination of prior art aircraft flight recorder components

would not result in the "hardened voyage recorder" claimed herein.

Applicant respectfully requests reconsideration of claims 120-136 now pending; and solicits the allowance of these claims at an early date.

RESPECTFULLY SUBMITTED,



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